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Amdt. Dated October 18, 2005
Reply to Office action of July 18, 2005
Appl. No. 10/025,045

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REMARKS

Drawings

The drawings were objected to for allegedly not showing a "calibrated spoken word". Applicant submits in response that the recited claims are directed to a method as well as to a system and a program product for carrying out that method. Applicant further submits that the drawings submitted adequately illustrate an exemplary system, e.g., FIGs. 1A-1E, and block diagrams demonstrating the method, e.g., FIGs. 2-9. Regarding the claimed "calibrated spoken word", Applicant submits that the disclosure, taken in conjunction with the block diagrams, adequately describes the method by which such calibrated word is derived. See, for example, pages 9-10 and FIGs. 2-5. An explicit illustration of a "calibrated spoken word" is not necessary for a clear understanding of the invention. This may become clearer upon consideration of the remarks set forth below related to the claim rejections.

With respect to the objection as it relates to the photographs, it is respectfully requested that this portion of the drawing objection be held in abeyance until formal drawings can be prepared and submitted. Applicant is currently endeavoring to obtain formal drawings.

In view of the above discussion and that which is presented below, reconsideration and withdrawal of the drawing objection is kindly requested.

Claims

Upon entry of this Amendment, claims 1-20 are all the claims currently pending in the application. Claims 1, 10 and 19 have been amended. Claims 1-20 currently stand

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rejected. Specifically, claims 1-20 were rejected under 35 U.S.C. § 112, first and

second paragraphs. Claims 1-20 are further rejected under 35 U.S.C. 103 as allegedly

being unpatentable over Engebretson in view of Taylor. Claims 5-18 stand further

rejected again under 35 U.S.C. §103 as being unpatentable over Engebretson in view of

Taylor and claims 8 and 17 stand further rejected again under 35 U.S.C. §103 as being

unpatentable over Engebretson in view of Taylor in further view of Carr.

For the reasons set forth below, Applicant respectfully traverses the rejections

and requests favorable disposition of the application.

The Present Invention

The present invention is directed to a method of measuring the acuity of a human

subject's hearing. As described, related art speech reception threshold (SRT) testing

typically comprises playing a series of recorded words on headphones or some other

speaker device. After each word is played, the test subject indicates to the test taker

that he or she has understood the played word. This indication is done, for example, by

the subject verbally repeating the played word back to the test taker. The test taker

then "adjusts the sound intensity, or loudness, up or down, until the person's responses

to the played-back words" consistently indicate that the words are intelligible. (Page 2,

lines 10-21). In this manner, the speech recognition threshold, or boundary, is identified

at the loudness level above which the words are intelligible to the subject and below

which they are not.

In accordance with conventional SRT methods, the loudness of the overall word-

playing system is adjusted by the tester after each word is played and responded to,

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regardless of how the next recorded word, i.e., as it resides on the record media, compares to any of the previously played words with respect to their individual intensities. For example, even if the tester were to not change the intensity, or loudness, of the word-playing system from one word to the next, it is possible that the subject will detect a difference in the loudness of different words due to the fact that the words were recorded at different levels. The differences in the recorded levels "can often somewhat offset the adjustment of the playback gain by the tester during testing". (Page 5, lines 2-7). Accordingly, inconsistencies in the respective levels of the recorded words, i.e., as they are recorded and not as they are perceived by the test subject, can lead to inaccurate results.

According to the method described and claimed in the present application, however, the played words are "calibrated" before they are presented to the test subject. In particular, according to one embodiment, each recorded word is processed, or scaled, such that the root-mean-square (RMS) values of the energy of the words, e.g., the RMS values of digital WAV files representing the words, are equal. (See, for example, page 9, lines 4-10). Accordingly, regardless of the level at which each word was originally recorded, e.g., a screamed word versus a whispered word, the loudness perceived by the test subject would be the same for a given loudness, or gain, setting on the word-playing system. Inaccuracies in test results are, thus, avoided since the difference in intensity perceived by the test subject is attributable to the difference in system gain resulting from the tester's adjustment, and not from differences in the energy levels of the independently recorded words.

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Rejection under 35 U.S.C. § 112, ¶¶ 1 and 2

With respect to the rejection of claims 1-20 under 35 U.S.C. § 112, first and second paragraphs, Applicant respectfully submits as follows.

Applicant respectfully submits that in accordance with 35 U.S.C. § 112, first paragraph, the specification provides sufficiently enabling disclosure to permit one of ordinary skill in the art to make and use the invention. Specifically, a skilled artisan would understand from reading the specification that "calibrating" a previously recorded word, as that term is used in the present specification, means that the respective sound energy of that word is set to "substantially the same sound energy" as the other recorded words. (Page 5, lines 17-27). Further, it is disclosed that this "calibration" can be carried out, for example, by setting either the RMS energy of the words or the peak energy of the words, to an equal value. Applicant has not contended that the act of determining an RMS value or peak value is novel and, thus, the specification or drawings need not specifically describe or illustrate how to carry out these functions. A skilled artisan would know how to calculate RMS or peak value.

In addition, the grounds of rejection assert that the specification "does not reasonably provide enablement for any new or unobvious implementations or calculations for measuring calibration or speech thresholds based upon calibration". The grounds of rejection further assert that "one of pedestrian skill in the art of speech signal processing would perform some form of calibration ..." and that references to RMS and peak value calculations "appear in the prior art with greater precision than

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provided in applicant's specification." These are all arguments related to lack of novelty, however, and are not arguments related to lack of enablement.

To satisfy the enablement requirement Applicant merely need to provide a specification that enables a skilled artisan to make or use the invention. 35 U.S.C. § 112, ¶ 1. As set forth above, Applicant respectfully submits that the specification clearly discloses to a skilled artisan how to carry out the claimed method, i.e., how to calibrate a spoken word, or words, and how to measure the speech reception threshold based on the use of the calibrated word or words. Whether or not the subject matter of the claims is novel is an issue addressed below in regard to the prior art rejections.

In view of the above remarks, withdrawal of the §112, first paragraph, rejection is kindly requested.

For similar reasons to those set forth above regarding the rejection under 35 U.S.C. § 112, first paragraph, Applicant submits that each of claims 1-20 is sufficiently definite in accordance with 35 U.S.C. § 112, second paragraph. Applicant submits that it is clear from the specification and claims that the novel method and system set forth by the Applicant includes the combination of presenting one or more "calibrated" words, as clearly defined, and measuring the subject's speech reception threshold using the calibrated word or words. The grounds of rejection mention SRT testing several times. Although this may be an example

Withdrawal of the rejections under 35 U.S.C. § 112, first and second paragraphs, is kindly requested.

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Rejection under 35 U.S.C. § 103 over Engebretson

Initially, in regard to the rejection of claims 1-20 on pages 7 and 8 of the office action as being unpatentable over Engebretson in view of Taylor, Applicant points out that although the subject rejection appears to rely on the combination of Engebretson and Taylor, no reliance on Taylor is expressly disclosed in the grounds of rejection. Applicant therefore presumes that the apparent reliance on Taylor with respect to the §103 rejection described on pages 7-8 of the office action was in error. It is assumed that the rejection of claims 1-20 on pages 7 and 8 of the office action is based solely on the disclosure of Engebretson and Applicant addresses the rejection accordingly. If this assumption is incorrect, Applicant respectfully requests a new clarifying action.

With respect to the rejection of claims 1-120 as being obvious over Engebretson, Applicant respectfully traverses this rejection at least because Engebretson, as well as the other cited art of record, does not teach or suggest the recited combination of;

> calibrating at least one recorded spoken word by controlling each of the at least one recorded spoken words to have substantially the same sound energy;
>
> presenting the at least one calibrated recorded spoken word to a test subject; and
>
> measuring a speech reception threshold of the test subject by utilizing the at least one calibrated recorded spoken word, wherein the speech reception threshold is indicative of a sound level at which the test subject can recognize the presented recorded spoken word or words.

More particularly, Engebretson discloses an improved hearing aid that can be "custom fitted in performance characteristics to each individual patient". (Col. 1:58-60).

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The hearing aid and the procedures by which it is custom fitted to each patient disclosed in Engebretson does not include *calibrating recorded spoken words to have substantially the same sound energy*. The calibration procedure disclosed in Engebretson, disclosed, for example, at columns 14-17, is completely different than the claimed calibration procedure, both in function and result. Specifically, in Engebretson, the calibration step "gathers preliminary data on the hearing aid and its characteristics when inserted in the patient's ear". For instance, "it is desirable to calibrate for the ear impedance". (Col. 16:26-27). The steps of the calibration procedure of Engebretson include producing a series of fixed-frequency test sounds, each sound being within a different frequency range. Using these different fixed-frequency sounds "the actual sound pressure level SPL(F) in the patient's ear" is determined. (Col. 16:61-64). The results of this calibration procedure are then used "together with measurements of the auditory area (defining the patient's hearing) to then automatically calculate filter parameters." (Col. 14:31-34). Accordingly, the calibration step in Engebretson does not include making respective sound energies of recorded spoken words equal, as required by independent claims 1, 10 and 19. For at least this reason, Engebretson does not render obvious the subject matter recited in any of claims 1, 10 or 19, or any claims dependent therefrom.

Further, Engebretson does not teach or suggest presenting recorded spoken words, each with the same sound energy, i.e., calibrated, to a test subject. Instead, as discussed above, Engebretson discloses presenting fixed-frequency sounds, or tones. For this additional reason, Engebretson does not render obvious any of claims 1-20.

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Lastly, Engebretson does not teach or suggest measuring the test subject's sound reception threshold by using recorded spoken words of equal sound energy, i.e., by using the "calibrated" words. Instead, Engebretson discloses calculating filter parameters by using a calibration procedure's results in conjunction with "measurements of the auditory area", which define the patient's hearing. (Col. 14:31-34). Thus, not only is the calibration procedure of Engebretson different in process than the claimed calibration, as discussed above, but the calibration result in Engebretson is not even utilized as part of the measurement of the patient's hearing. A completely separate measurement is used for that purpose.

For the reasons set forth above, Engebretson does not render obvious any of independent claims 1, 10 and 19, or any of the claims dependent on these claims, specifically, claims 2-9, 11-18 and 20. Accordingly, the §103 rejection of claims 1-20 over Engebretson should be withdrawn.

Rejection under 35 U.S.C. § 103 over Engebretson in view of Taylor

Claims 5-7, 9, 14-16 and 18 are rejected under 35 U.S.C. § 103 as being unpatentable over Engebretson in view of Taylor. Because claims 5-7, 9, 14-16 and 18 each depends from independent claim 1 or claim 10, which are patentable as discussed above, and because Taylor fails to compensate for the deficiencies discussed above related to Engebretson, Applicant submits that claims 5-7 and 14-16 are patentable over the art of record for at least the same reasons as set forth above. Accordingly, withdrawal of the rejection of claims 5-7 and 14-16 over the proposed combination of Engebretson and Taylor is kindly requested.

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Rejection under 35 U.S.C. § 103 over Engebretson in view of Taylor and Carr

Claims 8 and 17 are rejected under 35 U.S.C. § 103 as being unpatentable over Engebretson in view of Taylor and Carr. Because claims 8 and 17 each depends from independent claim 1 or claim 10, which are patentable as discussed above, and because Taylor and Carr each fails to compensate for the deficiencies discussed above related to Engebretson, Applicant submits that claims 8 and 17 are patentable over the art of record for at least the same reasons as set forth above. Accordingly, withdrawal of the rejection of claims 8 and 17 over the proposed combination of Engebretson, Taylor and Carr is kindly requested.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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